Business group internal capital market excess value measure research

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Abstract: the article firstly combed the enterprise group's internal capital market value creation related research literature, then, summarizes the internal capital market excess value measure, on this basis, build a suitable for China's national conditions of internal capital market excess value measurement model. Finally, using the sample data of internal capital market is a group enterprise group excess value to measure (). Study shows that the value of the whole show, the excess value of enterprise groups, the generally low, 53.4% of the lineage of the negative, that is a family enterprise group's internal capital allocation inefficiencies in our country

1, the related literature review

With the rise of enterprise organization structure innovation and diversification strategy, Internal Capital Market (Internal Capital Market, ICM) become one of the hot research problem. Research on internal capital market economic consequences, at present the theoretical circle there are three main points：

(1), internal capital market theory of value creation

First, the internal capital market is information, supervision and motivation. In internal capital market, the company headquarters is asset provider, also is the owner of the assets remaining control, therefore, compared with the bank outside capital providers, such as corporate headquarters to take advantage of information [1-2] and [3] regulatory advantage. Because of these two kinds of advantage, the enterprise headquarters than investors have greater motivation and authority for choose a good project, namely "the Winner selection" [4] (Winner - picking) activities。

Second, relative to the external capital market, the function of the internal capital market with ease the financing constraints. Internal capital market is "much money effect" (more money effect) and "work effect" (smarter - money effect) [4]. Which on the one hand, because of the diversified enterprise each division incomplete correlation between cash flow and the mutual insurance, diversified enterprise debt financing ability has improved, multiple business units or independent companies in the same under the control of the parent company than can operate as an independent company to raise more outside capital, which can relax the enterprise external financing constraints, "much money effect". Internal capital markets, on the other hand, can put the money allocated to high efficiency project, generate more income, namely "work effect" (smarter - money effect) [4]. Zhou Yean, han mei (2003) on the backdoor listing of the hualian supermarket case analysis found that equity financing constraint relaxation [5]. Shao Jun, zhi-yuan liu (2006) theoretical model, and find that the headquarters of funds raised from the external market than can respectively raised by a single member enterprise resources combined, and the efficient allocation of funds raised to members。

(2), the theory of internal capital market value wreck

First, "much money effect" of internal capital markets will intensify enterprise manager excessive investment behavior [7]. Especially when weak investor protection degree, internal capital market financing function and may enlarge the managers' rent-seeking and overconfidence problems caused by the excessive investment. Stulz (1990) argue that free cash flow rich enterprise easy to excessive investment in earnings bad project [8]. Ceng Yamin, jun-sheng zhang (2005) research has shown that China's listed companies equity acquisition is abuse of free cash flow, is a sign of excessive investment。

Second, the internal capital market exists outside investors and company general manager (CEO), double agency problem between CEO and manager led to internal capital markets tend to have a serious "cross-subsidy" rent-seeking problem and managers. Lamont (1997) between the empirical analysis shows that department cross-subsidy phenomenon [10], Scharfstein and Stein, [2000] of the double agent model shows diversified enterprise internal there is a phenomenon of "socialism", the department manager will headquarters CEO decision by rent-seeking behavior effects, causing the low efficiency of capital allocation。

(3) the wealth effect of internal capital markets. As a result of the existence of large shareholder agency problem, internal capital market is often a controlling shareholder wealth transfer tools. Enterprise groups, the final control people use pyramid shareholding structure and the concealment of the internal capital markets activity, "empty" listed company, wealth transfer problems. Khanna, (2000) points out that the enterprise group formed through internal capital markets for empty controlling shareholders of listed companies may [12]. Yang (2006) of cotton by borne toward China group for case study, found that aims to improve capital allocation of internal capital market is partially alienated to transport channel。

In recent years, around the internal capital market efficiency is the main line, foreign scholars from corporate governance, organization structure, business relevance degree, different aspects of the difference of investment opportunities for internal capital market value creation is studied。

2. how to measure value creation effect of internal capital markets

At present, the effect of internal capital market there are three of the most commonly used measurement methods, namely the value increase, q value sensitive method and cash flow sensitivity method。

(1) value increase. Value increase method by Rajan et al. (2000) [14]. The method is to use Relative Value increase (Relative Value Added, RVA) and Absolute Value increase (Absolute Value Added, AVA) two indicators to measure the efficiency of ICM. Its computation formula is respectively：

$$EV = \frac{MV_d}{RVA_d} - \sum_{j=1}^{n} q_j \frac{BA_j}{BA_d} \qquad EV^{'} = \frac{MV}{S} - \sum_{j=1}^{n} (\frac{MV}{S}) \frac{S_j}{S}$$

Among them Is at the end of the market value of assets, the enterprise is the replacement value of assets, is the same as the division has three digits standard industry code independent of average, is the book value of assets, sales revenue, is a diversified division number。

(2) the tobin value sensitivity method. This method is Peyer and Shivdasani (2001) [15], in a sector investment value sensitivity coefficient to determine the efficiency of internal capital markets. Its computation formula is as follows：

$Q_s = \dfrac{\sum_{j=1}^{n} sale_j \times (Q_j - \overline{Q}) \times \left\{ \left[\dfrac{capex}{sale} \right]_j - \left[\dfrac{totalcapex}{totalsale} \right] \right\}}{totalsale}$, Among them Q_j, for the department tobin Q, $\overline{Q}$ is

a weighted average of the corporate sector assets Q , $capex$ Is the department of investment spending , $totalcapex$ Is an enterprise's investment spending , If $(Q_j - \overline{Q})$ With

$\left\{ \left[\dfrac{capex}{sale} \right]_j - \left[\dfrac{totalcapex}{totalsale} \right] \right\}$ With number，namely sector investment value sensitivity is positive, then

the internal capital market allocation of resources to be effective。

3. measures of internal capital market value creation

3.1 sample instructions and data sources

Foreign empirical studies of internal capital market capital allocation mainly by M type enterprises as the research object, using the enterprise group division or business unit financial data of the test the efficiency of internal capital allocation problem. In view of our country about the division of the data to be outside the scope of mandatory disclosure of listed companies, this article use an alternative method for empirical research. Since 1999, in the Chinese capital market, appear the phenomenon of more than one control [18], that is, a final controller to control the phenomenon of many listed companies. And, and people are used to the many listed companies belonging to the same ultimate controller control referred to as the "system". In many listed companies in the composition of the "system" within a wide range of internal capital market, and publicly available data of listed companies, so this is a family group for us to study the internal capital market in the capital allocation behavior provides a good analysis of samples. Based on the above reasons, this article is a family group as the research sample。

This article select 2014 a-share non-financial listed companies in Shanghai and shenzhen two city as the research sample. Reference Claessens et al. (2000) [19] research methods, according to the equity of the listed company control chain information, for all the major shareholders of listed companies, the controlling shareholder or actual controller to carry on the back, if the major shareholders of listed companies, the controlling shareholder or its actual controllers can be traced back to the same economic subject, then these listed companies is defined as a family group. Lineage group still exist in the private company, but due to the data of a private company usually can't from public access to, at the same time, relative to the non-listed companies, the operation of China's listed companies within the group has obvious advantage in the position, and, by convention, the study of enterprise group usually listed companies within the group as the research object (Khanna, 2000), [20]. In this article, therefore, is a family group of listed companies as the research object。

3.2 measure of internal capital market value creation

As for the measurement of enterprise value, empirical studies in the west are generally adopt tobin value. A few domestic studies with a price-to-book said enterprise value. These two indexes related to market value, however, due to the incompleteness of emerging market in China, the listed company stock price often far from its actual value, the value of tobin and city net can well reflect the enterprise value. Moreover, research on diversified enterprise value cannot simply be diversification and specialization enterprise value in direct contrast, enterprise need to measure relative to a single division, the relative value of the enterprise, namely the excess value. The advantage of relative value increase method is: can effectively measure the enterprise, the relationship between capital investment and capital appreciation is intuitively the enterprise capital appreciation and assets measurement and analysis on the usage, the internal capital market value creation, data accessible, easy to observe the test results, a simple and intuitive. Therefore, we adopt Rajan et al. (2000) [14] the research method of the calculation formula is：

$$EV = \frac{MV_d}{RVA_d} - \sum_{j=1}^{n} \frac{BA_j}{BA_d} \tag{1}$$

EV The calculation process and the results are shown in table 1. Can be seen from table 1, 102 is a group of 296 listed companies, mainly distributed in the manufacturing sector, accounting for 174 (58.78%), mainly because our country enterprise group mainly based on state-owned manufacturing enterprises. Can be seen from table 2, the department of the listed company's industry average tobin. Table 3 said excess value is a family group. Value as a whole, the results showed that the lineage excess value generally low, 53.4% of the lineage of the negative, that our company group's internal capital allocation inefficiencies。

Table 1 is a family group, the calculation of the excess value（ *EV* ）

Ethnic group	EV	Ethnic group	EV
telecom	0.41629	Grain	0.46211
the country electric power system	-0.10955	oil department	0.29753
investment system	-0.07861	the department of panzhihua iron &steel co	0.34981
traffic construction in China	-0.38026	faw	-1.07571
China	0.75671	the China national machinery industry	0.10484
China huaneng group	-0.15617	CLP vote system	-0.09356
blue galaxy	1.64084	petrochemical	0.12955
sinosteel	-0.21194	investment promotion department	-0.12448
south line disappears	-0.26712	tsinghua university department	-0.62615

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